

CLAIMS

1. A method for detecting changes in gene expression level in cells treated with a particular compound, the method comprising the steps  
5 of:

(a) isolating mRNA from cells treated with the particular compound and mRNA from untreated cells;

(b) obtaining a set of cDNAs by reverse transcribing each mRNA isolated;

10 (c) labeling the respective cDNA sets with different fluorescent labels;

(d) hybridizing each set of labeled cDNAs to a particular probe DNA; and

15 (e) detecting differences in the amount of cDNA hybridized with the particular DNA probe among each set of the labeled cDNAs in terms of the color of fluorescence emitted from the cDNA hybridized with the particular DNA probe.

2. The method of claim 1, wherein the labeled cDNAs are simultaneously hybridized to a large number of probe DNAs.

20 3. The method of claim 1, wherein one set of cDNAs is labeled with rhodamine, and the other set is labeled with FITC.

4. A method for screening a gene whose expression level is varied in cells by treating the cells with a particular compound, the method comprising the steps of:

25 (a) isolating mRNA from cells treated with the particular compound and mRNA from untreated cells;

(b) obtaining a set of cDNAs by reverse transcribing each mRNA isolated;

30 (c) labeling the respective cDNA sets with different fluorescent labels;

(d) hybridizing each set of labeled cDNAs to a particular probe DNA;

35 (e) detecting differences in the amount of cDNA hybridized with the particular DNA probe among each set of the labeled cDNAs in terms of the color of fluorescence emitted from the cDNA hybridized with the particular DNA probe; and

(f) selecting a probe DNA that made the amount of cDNA hybridized with the probe DNA different to select the gene corresponding to the probe DNA selected.

5. The method of claim 4, wherein the labeled cDNAs are simultaneously hybridized to a large number of probe DNAs.

6. The method of claim 4, wherein one set of cDNAs is labeled with rhodamine, and the other set is labeled with FITC.

7. A gene whose expression level is varied in cells by treating the cells with a particular compound, which is detected by the method 10 of any one of claims 4 to 6.

8. A vector containing the gene of claim 7.

9. A transformant carrying the vector of claim 8.

10. A protein or peptide having an amino acid sequence encoded by the gene of claim 7.

11. A method for screening a compound that alters the expression level of a gene corresponding to a probe DNA, the method comprising the steps of:

(a) isolating mRNA from cells treated with a test compound and mRNA from untreated cells;

(b) obtaining a set of cDNAs by reverse transcribing each mRNA isolated;

(c) labeling the respective cDNA sets with different fluorescent labels;

25 (d) hybridizing each set of labeled cDNAs to a particular probe DNA;

(e) detecting differences in the amount of cDNA hybridized with the particular DNA probe among each set of the labeled cDNAs in terms of the color of fluorescence emitted from the cDNA hybridized with the particular DNA probe; and

30 (f) selecting a test compound that made the amount of cDNA hybridized different.

12. The method of claim 11, wherein the labeled cDNAs are simultaneously hybridized to a large number of probe DNAs.

35 13. The method of claim 11, wherein one set of cDNAs is labeled with rhodamine, and the other set is labeled with FITC.

14. A compound that alters the expression level of a particular gene,

which is detected by the method of any one of claims 11 to 13.